## (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 27 January 2005 (27.01.2005)

PCT

(10) International Publication Number WO 2005/008781 A1

(51) International Patent Classification<sup>7</sup>: 31/10

H01L 27/146,

(21) International Application Number:

PCT/KR2004/000729

(22) International Filing Date: 30 March 2004 (30.03.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 10-2003-0049859

21 July 2003 (21.07.2003) K

(71) Applicant (for all designated States except US): OP-TOMECHA CO. LTD. [KR/KR]; #102, Daerung Technotown 5th, 493, Gasan-dong, Geumchun-gu, Seoul 153-803 (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): KANG, Shinill [KR/KR]; 102-1107, Daerim Apartment, Daebang-dong, Dongjak-ku, Seoul 156-020 (KR). (74) Agent: KIM, Seon-Min; Lee & Kim, 5th Fl. New-Seoul Bldg., 828-8, Yoksam-dong, Kangnam-ku, Seoul 135-935 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

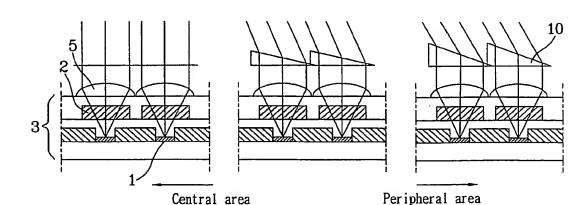
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

with international search report

[Continued on next page]

(54) Title: IMAGE SENSOR AND METHOD FOR FABRICATING THE SAME



(57) Abstract: An image sensor includes a substrate in which photoelectric elements have been formed, and an array of optical path conversion elements formed at a light so that the optical path converted light may be incident on the substrate, wherein each of the optical path conversion elements has different tangent line gradients on the corresponding parts of incident surfaces according to distances from the center of the image sensor in order to compensate for differences of incident angles of incident light according to the distances from the center of the image sensor. In addition, a method for fabricating the image sensor fabricates the optical path conversion elements according to a photolithography process using a gray scale mask, combinations of the photolithography process and a reactive ion etching process, or combinations of the photolithography process, the reactive ion etching process, and an UV-molding process.

VO 2005/008781 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.